AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) ~~A saddle tee and tap combination for use in making a fluid connection with an irrigation line in an irrigation system,~~ The saddle tee and tap combination of claim 20 wherein the ~~saddle tee comprising;~~

~~a base having first and second ends, and a passageway therebetween, and~~

~~a clamp on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the~~ clamp is adapted for compressing the irrigation line to elongate the cross-sectional profile in a direction aligned with the passageway in the base; and

~~the tap configured for insertion into the tee and comprising a stem having a passage therethrough, the stem terminating~~ the tip of the tap terminates in a blunt point having a radius of curvature ~~whereby the blunt point, in penetrating the line, forms~~ configured to form a coupon that remains hingedly attached to the irrigation line wall.

2. (previously presented) The combination according to claim 1 wherein the clamp comprises first and second arms, a first jaw hingedly connected to the first arm; a second jaw hingedly connected to the second arm, and wherein the first jaw overlaps and engages the second jaw to close the clamp.

3. (previously presented) The combination according to claim 2 wherein the clamp closes around an irrigation line and the jaws engage when the saddle tee is pressed against the irrigation with no more than about thirty pounds of force.

4. (previously presented) The combination according to claim 1 wherein the closed clamp defines a dimension L2 aligned with the passageway, and a dimension L1, perpendicular to L2, and wherein L2 is greater than L1.

5. (previously presented) The combination according to claim 1 wherein the clamp comprises first and second arms, a first jaw hingedly connected to the first arm; a second jaw hingedly connected to the second arm, the first and second jaws adapted to be connected to close the clamp, the maximum transverse dimension between the jaws being less than the diameter of the irrigation line.

6. (previously presented) The combination according to claim 5 wherein the dimension of the clamp parallel to the passageway is greater than the diameter of the irrigation line.

7. (previously presented) The combination according to claim 6 wherein the dimension of the clamp parallel to the passageway is greater than a maximum transverse dimension between the jaws.

8. (previously presented) The combination according to claim 1 wherein the arms are at least 0.5 inches long.

9. (previously presented) The combination according to claim 8 wherein the arms are between about 0.6 and about 0.7 inches long.

10. (previously presented) The combination according to claim 2 wherein the first jaw has first and second ends, and a generally arcuate configuration, with a concave inner surface for engaging a portion of an irrigation line, and the second jaw has first and second ends, and a generally arcuate configuration, with a concave inner surface for engaging a portion of an irrigation line.

11. (previously presented) The combination according to claim 10 wherein the thickness of the arms generally tapers from the proximal end adjacent the base to their distal end.

12. (previously presented) The combination according to claim 11 wherein the jaws are hingedly mounted to their respective arms intermediate their ends.

13. (previously presented) The combination according to claim 12 wherein the length of the jaw between the first end and the hinge connection is at least about one-third of the distance between the arms.

14. (previously presented) The combination according to claim 13 wherein the length of the jaw between the first end and the hinge connection is at least about 0.4 inches.

15. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base~~ the base having first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp being on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second arms extending from the base, a first jaw, having first and second ends, hingedly connected to the first arm intermediate the first and second ends; a second jaw, having first and second ends, hingedly connected to the second arm intermediate the first and second end, and wherein the second ends of the first and second jaws overlap and engage each other to close the clamp, the clamp self-closing around an irrigation line when the saddle tee is urged against the irrigation line with at least 30 pounds of force.

16. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base~~ the base having first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp being on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second arms extending from the base, a first jaw, having first and second ends, hingedly connected to the first arm intermediate the first and second ends; a second jaw, having first and second ends, hingedly connected to the second arm intermediate the first and second end, and wherein the second ends

of the first and second jaws overlap and engage each other to close the clamp, the arms being at least 0.5 inches long.

17. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base~~ the base having first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp being on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second arms extending from the base, a first jaw, having first and second ends, hingedly connected to the first arm intermediate the first and second ends; a second jaw, having first and second ends, hingedly connected to the second arm intermediate the first and second end, and wherein the second ends of the first and second jaws overlap and engage each other to close the clamp, the portion between the first end of each jaw and the hinged connection with its respective arm being at least about 0.4 inches.

18. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base~~ the base having first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp being on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second arms extending from the base, a first jaw, having first and second ends, hingedly connected to the first arm intermediate the first and second ends; a second jaw, having first and second ends, hingedly connected to the second arm intermediate the first and second end, and wherein the second ends of the first and second jaws overlap and engage each other to close the clamp, the portion between the first end of each jaw and the hinged connection with its respective arm being at least about one third of the distance between the arms.

19. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base~~ the base having first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp being on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second arms extending from the base, a first jaw, having first and second ends, hingedly connected to the first arm intermediate the first and second ends; a second jaw, having first and second ends, hingedly connected to the second arm intermediate the first and second end, and wherein the jaws contact between about 2/3 and about 3/4 of the circumference of the irrigation line.

20. (previously presented) A saddle tee and tap combination for making a fluid connection with the irrigation line,

the tee comprising a base including a passageway having an internal thread, and a clamp on an end of the base for engaging the irrigation line generally in alignment with the passageway;

the tap comprising a body including an external thread thereon to engage the internal thread on the saddle tee, and a tip projecting from the body to penetrate the irrigation line and including a thread thereon to engage the wall of the irrigation line and an opening to allow fluid communication with the exterior of the irrigation line.

21. (previously presented) The saddle tee and tap combination according to claim 20 wherein the tap has a flange that engages the wall of the irrigation line surrounding the puncture made by the tip.

22. (currently amended) ~~A tap for insertion through a passage in a saddle tee for puncturing an irrigation line on which the saddle tee is secured, the tap having a stem having a passage therethrough, the stem terminating~~ The saddle tee and tap combination of claim 20 wherein the tip terminates in a point with an angle greater than about 70°.

23. (currently amended) The saddle tee and tap combination according to claim 22 ~~where the stem~~ wherein the tip terminates in a point with an angle of between about 70° and about 85°.

24-27. (canceled)

28. (currently amended) ~~A fluid connection in an irrigation line, the fluid connection comprising a saddle tee having a base with a passage therethrough, and a clamp thereon for engaging an irrigation line, the clamp holding the irrigation line in alignment with the passage, and compressing the irrigation line into a generally oval cross-section elongated in the direction of the axis of the passageway;~~

~~a tap in the passageway of the saddle tee, the tap having~~ The saddle tee and tap combination of claim 20 wherein the tip includes a cutting member configured for penetrating the irrigation line ~~in the clamp in the direction of elongation,~~ and making ~~a fluid connection~~ the fluid communication with the exterior of the irrigation line ~~to make a fluid connection with the wall of the irrigation line engaged in the clamp, in the direction of the elongation of the cross section~~; the cutting member having at least one beveled edge that causes a coupon to be formed from and connected to the line wall.

29. (currently amended) The connection according to claim 28 wherein the saddle tee is oriented so that the ~~passage~~ passageway extends generally horizontally.

30-31. (canceled)

32. (currently amended)) The saddle tee and tap according to ~~claim 31~~ claim 20 wherein a distance between the threads on the tip increases toward the body.

33. (currently amended) The saddle tee and tap according to ~~claim 31~~ claim 20 wherein the pitch of the threads on the tip is greater than the pitch of the threads on the body.

34. (currently amended) The saddle tee and tap according to ~~claim 31~~ claim 20 further comprising a seal adjacent the body and to be compressed by the wall of the irrigation line and the body.

35. (currently amended) The saddle tee and tap according to ~~claim 31~~ claim 20 further comprising the opening being located near the distal end of the tip.

36-39. (canceled)

40. (previously presented) A tap for use with a saddle tee, the tee to be secured on an irrigation line to make a fluid connection with the irrigation line, the tee including an internal thread, the tap comprising:

a body including an external thread thereon to engage the internal thread on the saddle tee, and

a tip projecting from the body to penetrate the irrigation line and including a thread thereon to engage the wall of the irrigation line and an opening on an unthreaded portion of the tip to allow fluid communication with the exterior of the irrigation line; the body having a diameter wider than a widest diameter of the tip.

41. (original) The tap according to claim 40 wherein the pitch of the threads on the tip increases toward the body.

42. (previously presented) The tap according to claim 40 wherein the pitch of at least a portion of the threads on the tip is less than the pitch of the threads on the body.

43 (original) The tap according to claim 40 further comprising a seal adjacent the body and to be compressed by the wall of the irrigation line and the body.

44. (original) The tap according to claim 40 further comprising the opening being located near the distal end of the tip.

45. (previously presented) The tap according to claim 40, the tap further comprising a shoulder between the tip threads and the external threads, the shoulder having a diameter which increases with distance from the tip threads to stretch an opening in the wall.

46. (original) The tap according to claim 45 wherein a wall of the irrigation line to assume a contour when the fluid connection is made, the shoulder further comprising a contour to substantially match the contour of the irrigation line wall.

47. (original) The tap according to claim 45 further comprising the increasing in diameter being monotonic.

48. (original) The tap according to claim 45 further comprising the shoulder defining an arc.

49. (original) The tap according to claim 40 further comprising the tip thread circling the tip less than about two times.

50. (original) The tap according to claim 40 further comprising the tee to be secured on the irrigation line by at least one clamp.

51-59. (canceled)

60. (currently amended) ~~A tap for insertion through a passage in a saddle tee for puncturing an irrigation line on which the saddle tee is secured, the tap having a stem having a passage therethrough, the stem terminating~~ The tap of claim 40 wherein the tip includes a blunt point having a radius of curvature greater than about 0.05 inches~~, whereby the blunt point forms~~ and is adapted for forming a coupon that remains hingedly attached to the irrigation line wall.

61. (currently amended) ~~A tap for insertion through a passage in a saddle tee for puncturing an irrigation line on which the saddle tee is secured, the tap having a stem having a~~

~~passage therethrough, the stem having~~ The saddle tee and tap combination of claim 20 wherein the tap includes a shoulder to match the contour of the wall near the ~~puncture~~ penetration.

62. (currently amended) ~~A tap for insertion through a passage in a saddle tee for puncturing an irrigation line on which the saddle tee is secured, the tap having a stem having a passage therethrough, the stem terminating in~~ The tap of claim 40 wherein the tip includes a cutting member having one or more cutting edges arranged to define an area around which the cutting member is configured to cut.

63-68. (canceled)

69. (currently amended) ~~A saddle tee for use in making a fluid connection with an irrigation line in an irrigation system, the saddle tee comprising;~~ The saddle tee and tap combination of claim 20 wherein

~~a base having~~ the base includes first and second ends, ~~and a~~ and the passageway therebetween, and

~~a clamp~~ the clamp is on the second end for engaging the irrigation line generally in alignment with the passageway through the base, the clamp comprising first and second spacers extending from the base, a first jaw, having first and second ends, hingedly connected to the first spacer intermediate the first and second ends of the first jaw; a second jaw, having first and second ends, hingedly connected to the second spacer intermediate the first and second end of the second jaw, and wherein the second ends of the first and second jaws overlap and engage each other to close the clamp, the spacers spacing the jaws sufficiently from the second end of the base to permit debris to pass through the passage when an irrigation line is engaged in the clamp.

70. (original) The saddle tee according to claim 69 wherein the spacers are between about are at least 0.5 inches long.

71. (original) The saddle tee according to claim 70 wherein the spacers are between about 0.6 and 0.7 inches long.

72. (currently amended) ~~A saddle tee and tap combination for making a fluid connection with an irrigation line in an irrigation system,~~

~~the saddle tee comprising a base having a passage therethrough, and a clamp thereon for engaging an irrigation line,~~ The saddle tee and tap combination of claim 20 wherein the clamp is adapted for holding the irrigation line in alignment with the passage, and compressing the irrigation line into a generally oval cross-section elongated in the direction of the axis of the passageway; and

~~the tap having a~~ the tip of the tap is ~~with an end~~ adapted to be inserted into the passageway ~~so that the end scores~~ and adapted for scoring around an area of and ~~penetrates~~ penetrating the wall of the irrigation line engaged in the clamp, in the direction of the elongation of the cross section.

73. (previously presented) The saddle tee and tap combination according to claim 72 wherein the tap having a flange that engages the wall of the irrigation line surrounding the puncture made by the tip.

74. (original) The saddle tee and tap combination according to claim 73 further comprising a seal adjacent the flange adapted to be compressed between the flange and the irrigation line to form a seal therebetween.

75. (currently amended) ~~A fluid connection in an irrigation line, the fluid connection comprising a saddle tee having a base with a passage therethrough, and a clamp thereon for engaging an irrigation line, the clamp holding the irrigation line in alignment with the passage, a tap in the passageway of the saddle tee,~~ The saddle tee and tap combination of claim 20 wherein the tap ~~having~~ includes a base ~~and a tip~~ and the tip extending from the tap base ~~and penetrating the irrigation line in the clamp and making a fluid connection with the irrigation line, the tip having~~ and includes a shoulder adjacent a junction of the tip with the tap base, the shoulder having a longitudinal contour configured to stretch an opening in and form a seal with the irrigation line.

76. (previously presented) The fluid connection according to claim 75 wherein the contour is curved.

77-93. (canceled)

94. (previously presented) The tap according to claim 40 further comprising the saddle tee having:

a base including a passageway that includes the internal thread; and

a clamp on an end of the base for engaging the irrigation line generally in alignment with the passageway.

95. (new) The tap of claim 40, further including a shoulder adjacent a junction of the tip with the body, the shoulder having a longitudinal contour configured for stretching an opening in and forming a seal with the irrigation line.

96. (new) The tap of claim 40 wherein the tip terminates in a point with an angle greater than about 70°.

97. (new) The tap of claim 96 wherein the tip terminates in a point with an angle of between about 70° and about 85°.

98. (new) The tap of claim 40 wherein the tip includes wherein the tip includes a cutting member configured for penetrating the irrigation line and making the fluid communication with the exterior of the irrigation line

99. (new) The tap of claim 98, wherein the cutting member includes at least one beveled edge that causes a coupon to be formed from and connected to the line wall.

100. (new) The tap of claim 40 wherein the tip of the tap is adapted for scoring around an area of and penetrating the wall of the irrigation line.